

REQUEST FOR RECONSIDERATION

Applicants thank Examiner Fubara for the helpful and courteous discussion of August 15, 2003. During the discussion, Applicants' U.S. representative presented arguments that the (ionic-bonding) cross-linking agents of amended Claim 1 are not disclosed in the prior art references relied upon by the Examiner. The Examiner indicated that Claim 1, amended to further limit the crosslinking agent, may overcome the rejections of record. The Examiner further requested that Applicants provide information showing that those of ordinary skill in the art recognize that higher gelling correlates with a higher degree of crosslinking.

Claim 1 has been amended herein to limit the crosslinking agent (c) to those crosslinking agents that are ionic-bonding.

Claims 1, 3 and 6-8 were rejected under 35 U.S.C. § 102(b) in view of a patent to Guillaume (WO 98/44898). Ionic-bonding crosslinking agents are disparaged in the Guillaume reference. On page 4, line 28 through page 5, line 1 of the Guillaume publication it is disclosed "The cross-linked polymer... preferably has only carbon-carbon bond cross linkages." Carbon-carbon bonds are not ionic bonds. One example of the crosslinked prior art polymer is described as "cross-linked with dodecadiene" (page 5, line 15). Dodecadiene is of formula $C_{12}H_{22}$ and is not an ionic crosslinking agent.

The second component of the Guillaume composition is a linear non-ionic polymer (page 5, line 21). A linear polymer is not a cross-linked polymer. Moreover, since the second component polymer is non-ionic, it does not have ionic crosslinking units.

Applicants submit that amended Claim 1 is not anticipated by Guillaume and respectfully request the withdrawal of the rejection under 35 U.S.C. § 102(b).

Claims 2 and 5 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Guillaume with Doi (U.S. 4,839,345). The Office has asserted that Claim 2, which limits the crosslinking agent to those crosslinking agents which are ionic-bonding, is

obvious in view of the combination of Guillaume and Doi. Applicants traverse the rejection on the grounds that the Office has not supported a *prima facie* case of obviousness.

Applicants submit that the prior art references relied upon by the Examiner do not provide those of ordinary skill in the art with a reasonable expectation of success and further the prior art references teach that crosslinked polymeric materials are not desirable.

The Doi patent discloses that aqueous solutions of materials such as polyacrylic acid may be crosslinked by metal salts. The Office has taken this prior art disclosure as support for the assertion that one of ordinary skill in the art would thereby be motivated to crosslink the hydrophilic polymeric compounds recited in present Claim 1 with a metal salt (e.g., an ionic-bonding crosslinking agent). However, Doi discloses that materials such as calcium chloride actually function as gelling retarders in the prior art compositions (column 2, lines 41-42). A long list of gelling retarders is provided at column 7, line 57 through column 8, line 30.

Applicants submit that a material which functions as a gelling retarder may be a material that inhibits crosslinking. As evidenced by the attached technical information, increased gelling may correspond with an increase in crosslinking and viscosity (i.e., as crosslinking increases the gelation of a composition may exhibit a corresponding increase).¹ A compound that retards gelling may therefore inhibit crosslinking. The Doi metal salts are therefore described not as crosslinking agents but rather as crosslinking retarders. A crosslinking retarder does not render as crosslinking agent obvious since they function in opposite ways.

Moreover, the crosslinking referred to in Doi is with regards to proteins. The presently-claimed composition requires a hydrophilic polymeric compound. Applicants submit that the proteins described in the Doi patent are not inherently hydrophilic polymers

¹ Downloaded from <http://flux.aps.org/meetings/YR97/BAPSMAR97/abs/S1695001.htm>.

and that any teachings regarding the crosslinking properties of the proteins in Doi are not necessarily applicable to the hydrophilic polymers recited in present Claim 1.

The prior art compositions are noted to have good adhesion to the skin (column 9, lines 21-22). It is further disclosed that the prior art adhesive sheets have adhesion properties that are only affected a very little by sweating (column 9, lines 25-27). The crosslinked materials of Doi are disclosed to provide advantageous properties including adhesion to the skin and water resistance as evidenced by the minimal effect of sweat on the adhesive properties of the prior art sheets. These properties are in contravention to the properties preferred for the claimed composition. Water resistance is not disclosed to be a desirable attribute of the presently claimed compositions. In fact the claimed gel depilatory composition is disclosed to be easily cleaned (page 31, lines 16-17). For example it is disclosed in Doi:

In comparison with the sheet pack agents obtained by a crosslinking polyacrylate with crosslinking agents such as calcium chloride, etc., in an aqueous solution, the ointment in this invention has good adhesion and remarkable readhesion of the pack agent (column 9, lines 38-43).

Therefore Doi teaches (1) that polyacrylates crosslinked with agents such as calcium chloride are not desirable and (2) resistance of the prior art adhesives to water is desirable.

Doi discloses that crosslinked polyacrylates have properties that are disadvantageous and not desired. Applicants submit that such a teaching does not provide one of ordinary skill in the art a reasonable expectation that an effective depilatory gel can be prepared by combining a crosslinked ionic polymer with the other components required in present Claim 1. To the contrary, such a teaching constitutes a teaching away from the presently claimed invention and the combination of the Doi patent with the Guillaume publication to render the claimed invention obvious is not proper.

This contradictory teaching, together with the contradictory teaching that materials such as calcium chloride act to retard gelling, are substantial and relevant disclosures that teach away from the presently claimed invention. In light of the relevant contradictory teachings of Doi, a combination of the Doi and Guillaume patents is not proper and does not represent a sufficient basis from which to determine that the claimed is obvious (see MPEP § 2143.02-Reasonable Expectation of Success is Required).

The Office may be basing its rationale for combining the Doi patent and the Guillaume publication on the basis that Doi discloses that polyacrylate materials can be crosslinked with metal salts. This disclosure in Doi is, however, presented in such a way to teach those of ordinary skill in the art that polyacrylates crosslinked with such materials are not desirable. In at least this sense the Doi patent teaches away from the combination of the Doi patent and the Guillaume publication. It is improper to combine references where the references teach away from their combination (see MPEP § 2145(X)(D)(2)-References Cannot Be Combined Where Reference Teaches Away from Their Combination).

Applicants therefore submit that the Office has not met the burden of providing a prima facie case of obviousness. Hence the rejection under 35 U.S.C. § 103(a) should be withdrawn.

Application No. 10/053,658
Reply to Office Action of July 28, 2003

Applicants respectfully submit the amendment to the claims obviates the rejection under 35 U.S.C. § 103(a). Applicants respectfully request the withdrawal of the rejections and the passage of all now-pending claims to Issue.


Respectfully submitted,

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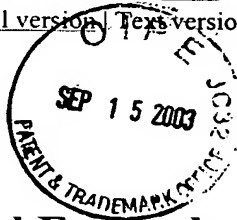


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Session F31 - Gels & Networks.

MIXED session, Tuesday morning, March 18

Room 4204B, Conv. Center



[F'31.01] The Effect of Physical Entanglements on Gel Point Detection

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Detection of the gel point of crosslinking high molecular weight precursor polymers can be quite difficult. Gel point determination can be made by extrapolating viscosity measurements during the crosslinking reaction as the gel point is approached. Dynamic mechanical methods of monitoring crosslinking reactions prove to be more informative because one can rheologically monitor the reaction from the liquid to the solid state. Though dynamic methods are effective in measuring changing structure during crosslinking, they are limited to probing the terminal zone where the change in structure is apparent. Due to entanglements in high molecular weight polymers, this terminal zone (low frequency regime) shifts to lower frequencies as the molecular weight increases. This shift makes it more difficult to observe the gelation process. In this study we used the dynamic mechanical technique of cyclic frequency sweeps (CFS) to monitor the random crosslinking of six high molecular weight, nearly monodisperse polybutadienes. We will show how physical entanglements interfere with gel point detection by the CFS method.

▪ **Part F of program listing**